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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

WYROZEBSKI LEE, KATARZYNA I

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 12/19/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/630,517

Applicant(s)

BERNARD ET AL.

Examiner

Katarzyna W. Lee

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 19-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-18, drawn to composition comprising clay, oxygen scavenging system and polymer, classified in class 524, subclass 445.
 - II. Claims 19-29, drawn to layered article, classified in class 428, subclass 34.1.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the composition does not have to be utilized in layered articles.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Mr. Murphy on December 3, 2001 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-18. Affirmation

Art Unit: 1714

of this election must be made by applicant in replying to this Office action. Claims 19-29 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Per conversation conducted on December 3, 2001 article claims 19-29 can be rejoined upon applicant's request as long as the allowable subject matter is identified and is included in the article claims.

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Art Unit: 1714

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1-14 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-17 of co-pending Application No. 09/630518 (518). Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following explanation.

Co-pending application '518 discloses composition comprising platelet material, which can be exfoliated, oxygen scavenging system and polymer.

The polymer of '518 includes polyamide, which can be utilized in the amount of up to 99.9 % by weight.

The oxygen-scavenging component includes transition metal salt, such as cobalt halide and the layered silicate, which can be swollen inherently implies smectite type clays.

Although '518 does not provide the amount of layered silicate utilized in the composition, it is clear that it would be the difference between the total composition and the amount of polymer. The '518 therefore discloses very wide range in which the silicate can be utilized.

In any event, one having ordinary skill in the art can when utilizing invention of claims 1-14 of '517 will arrive at the invention of '518.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Art Unit: 1714

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

9. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites that the platelet is derived from at least one layered silicate. Use of term “derived” renders claims indefinite, since it is not clear as to what exactly platelet particles are.

Claim 11 recited that the scavenging catalyst is from the first, second and first transition series. This sentence renders claim indefinite since it is not clear as to what series the applicant is referring to. For the sake of prompt prosecution of the case the examiner will treat this recitation as that referring to periodic table of elements.

Claim 14 is not a proper Markush form. Furthermore, in claim 14 the applicant states that the scavenging system is a metal in a low oxidation state that can be further reduced to higher oxidation state usually in combination with salt. The claim is indefinite, since it is not clear as to what type of metals the applicant is referring to and whether or not the metal is actually oxidized and if the salt is actually present.

Claim 16 recites term “type”. Use of such term renders claim indefinite.

Art Unit: 1714

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 1714

13. Claims 1-4, 9-14, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt (WO 99/38914) in view of Maxfield (US 5,385,776).

The prior art of Schmidt discloses a composition comprising oxygen-scavenging system utilized in packaging industry, for example bottles, and which minimizes permeation of the oxygen gas to the beverage or food.

The polymer utilized in conjunction with the oxygen scavenging system is polyamide. Claims of the prior art of Schmidt disclose polyamide MXD-6 as one of the preferred embodiments. Additional polymers disclosed in claims of the prior art of Schmidt include polyesters such as polyethylene terephthalate and polyolefins.

According to claims of Schmidt, polyamide contains a transition metal compound as oxygen scavenging component in the amount of at least 200 ppm. In the claims of the prior art of Schmidt, the preferred transition metal is cobalt, utilized in conjunction with carboxylate counter ion. Claim 63 of the prior art of Schmidt discloses, that the preferred counter ion is neodecanoate.

The difference between the present invention and the disclosure of the prior art of Schmidt is use of layered silicate in conjunction with oxygen scavenging system.

The prior art of Maxfield discloses a composition for clay nanocomposite, where sodium exchanged montmorillonite clays are swelled with compound such as octadecyl ammonium intercalant. The resulting composition would produce nanocomposite suitable for use in food packaging and beverage bottles due to its excellent gas barrier property.

Art Unit: 1714

The goal of the disclosures cited in the rejection of the present claims is to obtain composition suitable for use in plastic containers such as beverage bottles. Both prior art disclosures require clear containers with excellent gas barrier property.

In the light of the above disclosure, it would have been obvious to one having ordinary skill in the art at the time of the instant invention to combine the disclosures of Schmidt and Maxfield and still obtain the claimed invention. Since both disclosures have the same goal, which is a transparent container with excellent gas barrier property, the combination of two known compositions is expected to work in additive or cumulative manner. *In re Kerkhoven* 626 E.2d 846, 850 205 USPQ 1069, 1072 (CCPA 1980).

14. Claims 14, 15, 17, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt (WO 99/38914) in view of Maxfield (US 5,385,776) as applied to claims 1-4, 9-14, 16 above, and further in view of Mathews (US 6,254,803 B1).

The discussion of the disclosure of the prior art of Schmidt and Maxfield from paragraph 13 of this office action is incorporated here by reference.

The difference between the present invention and the disclosure of the prior art of Schmidt and Maxfield is a recitation of antioxidant, anthraquinone and photoinitiator in the composition having oxygen-scavenging abilities.

With respect to the above difference, the prior art of Mathews teaches another composition, which required excellent oxygen barrier properties.

According to claims of the prior art of Mathews the polymer utilized in the composition includes polyester, polyvinyl acetate and polyethylene vinyl acetate. .

Art Unit: 1714

The metal catalyst includes transition metals such as Mn, Co, Ni, Cu and the like wherein the preferred embodiment is Co (col. 11). The counter ion utilized with transition metal is chloride, acetate, oleate and the like. It is disclosed also that the metal salt can be used as ionomer, where the counter ion is polymeric.

In addition to the polymer and metal catalyst, the prior art of Matthews discloses use of photoinitiator in order to facilitate the oxygen scavenging properties once it is activated (col. 7). Use of such photoinitiators according to the prior art of Matthews results in shorter induction time and change in rate of the oxygen uptake. Such photoinitiator includes quinines such as anthraquinone, which has inherent property such dye (col. 11).

Another component of the composition of the prior art of Matthews is antioxidant, which is utilized in order to inhibit oxidative degradation and/or crosslinking of the polymer (col. 7).

The disclosure of the metal compounds and counter ions utilized in the prior art of Matthews shows equivalency of each one of the species, since all of them will efficiently assist in scavenging oxygen from the polymeric composition. The addition of photoinitiator and antioxidant has also its advantages such as shorter induction time, change in rate of the oxygen uptake, as well as prevention of the oxidative degradation and/or crosslinking of the polymer.

In the light of the above disclosure, it would have been obvious to one having ordinary skill in the art at the time of the instant invention to utilize polymeric counter ion with the transition metal catalyst and still obtain the claimed invention. Use of counter ion and additives of Matthews would also result in a composition capable of efficient scavenging of the oxygen from the container as well as resulting in shorter induction time, change in rate of the oxygen uptake, as well as prevention of the oxidative degradation and/or crosslinking of the polymer.

Art Unit: 1714

15. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt (WO 99/38914) in view of Maxfield (US 5,385,776) as applied to claims 1-4, 9-14, 16 above, and further in view of Deguchi (US 5,248,720).

The discussion of the disclosure of the prior art of Schmidt and Maxfield from paragraph 13 of this office action is incorporated here by reference.

The difference between the present invention and the disclosure of the prior art of Schmidt and Maxfield is teaching of the amounts of the layered silicate utilized in polyamide nanocomposites.

With respect to the above difference, the prior art of Deguchi discloses another polyamide nanocomposite composition, which requires excellent gas barrier property.

In the prior art of Deguchi, the layered silicate is also smectite type clay intercalated with swelling agent and exfoliated once mixed with the polyamide matrix.

In order to obtain good gas barrier properties, the amount of silicate in the prior art of Deguchi is 0.5-15 % by weight (col. 3).

Utilizing too large content of silicate material can impair the gas barrier property of the composition.

In the light of the above disclosure, it would have been obvious to one having ordinary skill in the art at the time of the instant invention to utilize the silicate of Schmidt in view of Maxfield in the amount of 0.5-15 % by weight and still obtain the claimed invention. The amount of silicate taught in the prior art of Deguchi results in polyamide composition having excellent gas barrier properties.

Art Unit: 1714

Specification

16. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katarzyna W. Lee whose telephone number is (703) 306-5875. The examiner can normally be reached on Mon-Thurs 6:30 AM-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (703) 306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

KIWL
December 7, 2001

EDWARD J. CAIN
PRIMARY EXAMINER
GROUP 1500

